

to the study of adverse reactions only (13 October, p 940). Properly, epidemiological pharmacology is the study of human populations exposed to pharmacological agents. However, it is only one of the tools used in social pharmacology. This wideranging discipline, analogous to social medicine, is concerned with the effects on society of exposure to drugs, the reasons for that exposure, and the social factors influencing the use of drugs.¹ These factors include the economic and political ones affecting prescribing practice. I therefore support Professor Lawson's plea that more pharmacoepidemiologists should be encouraged and hope that they would come from a wide range of disciplines.

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Who needs clinical pharmacology?

SIR,—It is open season on clinical pharmacology in the medical weeklies. Hard on the heels of an Italian group accusing clinical pharmacology of having lost its way¹ comes a distinguished British professor of medicine asking who needs clinical pharmacology (27 October, p 1119).

At least our Italian colleagues did us the courtesy of presenting some data, on which they based their conclusions. Professor J R A Mitchell chooses instead his review of a textbook of clinical pharmacology (of which incidentally he did not disapprove) to vent his spleen on a discipline with which I had always assumed he enjoyed cordial relations.

His attack is not only on clinical pharmacology. He apparently does not believe that pharmacology should ever have been separated from biochemistry and physiology. This is an argument which I had thought was settled some 30 years ago. Rereading some of Professor Mitchell's own substantial scientific contributions, one would have perhaps expected a slightly more gracious attitude towards the achievements of pharmacology, since he has relied on them quite heavily. He further denigrates pharmacology by placing it in an inferior position to therapeutics, which he finds difficulty in separating from medicine. It is sad that he does not appreciate the continuity of the discipline of pharmacology, stretching from the study of the fundamental properties of a drug (including its chemistry and mode of action) to investigation of the drug in volunteers and patients before its introduction into medicine. There is no justification for choosing any one part of this process as being more important than another: the chemist provides the tools for the pharmacologist to investigate and the doctor to use.

He uses the example of the time course of the hypotensive effect of atenolol to belittle human pharmacology. Any clinical pharmacologist worth his salt would have told him that neither the kinetics of a β blocker nor its dynamics as measured by inhibition of isoprenaline induced tachycardia gives any guidance to the duration of hypotensive activity of agents in this group.

Academic and industrial clinical pharmacology are robust enough to withstand this baseless type of attack, but the part of the discipline working within the National Health

Service is more fragile. Professor Mitchell is indeed fortunate to work in an environment where his colleagues in gastroenterology, oncology, cardiology, and endocrinology are so well informed in clinical pharmacology matters; in this he must be virtually unique. The encouragement of effective, safe, and economical prescribing (which are the aims of clinical pharmacology) within the National Health Service deserves more encouragement from Professor Mitchell than he seems prepared to give.

Professors of medicine might be better advised to tend to the not inconsiderable problems in their own discipline^{2,3} and put their own houses in order before interfering in matters which they clearly do not understand.

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SIR,—Professor J R A Mitchell uses a book review to criticise the relevance of basic medical sciences (including pharmacology) and of clinical pharmacology to clinical medicine. He shares the opinion of Macfarlane Burnet that "Almost none of modern basic research in the medical sciences has any direct or indirect bearing on the prevention of disease or on the improvement of medical care." Although the strength of an argument is not measured by Nobel laureates, I believe that the major contributions of Yalow, Schally, Samuelson, and Vane cast doubt on that view. This year's Nobel prize award to Cesar Milstein and Georges Kohler for their work on monoclonal antibody production is another example of the relevance of basic medical research to the progress of clinical medicine.

Professor Mitchell sees the clinician as a car driver and the scientist as an engineer or designer. He forgets that medical students (for which Girdwood's book was written, after all) may wish to become scientists instead of, or as well as, clinicians. Even the full time clinician will benefit from a knowledge of science, as the driver does from some understanding of engineering and design.

His second doubt concerns the existence of clinical pharmacology as a separate discipline. He contends that it attempts to fuse two disparate parts (pharmacology and therapeutics), which should have been kept separate. As someone concerned in both activities, I believe that it is precisely the failure of some physicians to recognise the natural unity of the two that has led to the necessity for the growth of clinical pharmacology. My own experience has convinced me that clinical pharmacologists can have fruitful collaboration with colleagues in the "organ based" specialties, and I certainly do not feel unwanted or unneeded.

Professor Mitchell tells us that the main problems in medicine are whether to use drugs rather than what the drugs are or even how to use them. To return to his own chosen analogy: if he believes that the decision about whether to drive a car can be made without reference to the ability to recognise the appropriate vehicle and handle it properly, I

hope I am well away from the public highway when he sallies forth on his next excursion into unfamiliar territory.

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SIR,—I had a profound sense of déjà vu when reading Professor J R A Mitchell's review. Surely we do not have to reopen the issue of whether clinical pharmacology is a discrete discipline: its permanent posts, its own journals, its national and international meetings, its role in district general hospitals¹ all attest to the fact that it is established. What is more alarming is the curious assertion that medical science can be neatly slotted into named files—pharmacology into one, for example, and therapeutics into another, and never should the twain meet. This view ignores the essential issue that drugs are chemicals and that when a doctor administers a chemical to a patient looking for its effect his or her observations will be incomplete if he ignores the fact that the chemical must be absorbed, distributed round the body, and eliminated from it. It is not necessary to carry in the mind the rate constants for transfer of drug from one mathematical body compartment to another, but some knowledge of a drug's kinetics may help to explain why treatment fails—for example, because of enzyme induction—or gives adverse results—for example, because of impaired renal function. Awareness of these problems has come not from therapeutists but from clinical pharmacologists. I agree that the average car driver need not understand the structural formula of petrol, but it may help to know when the fan belt is slack. To regard it as sufficient knowledge about a drug to "see if it works" is to aspire to a knowledge that is less than complete. Who needs clinical pharmacology? Professor Mitchell, perhaps you do.

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1 Pearson RM, Muclow JC. Clinical pharmacology in practice. *J R Coll Phys Lond* 1984;18:219-21.

Maggots dyed with chrysoidine

SIR,—We must concur with Mr G M Sole (20 October, p 1043) about the strong circumstantial evidence for the possible carcinogenic properties of chrysoidine. Not only has this been shown to be carcinogenic in mice, as stated; it is also a potent mutagenic agent in bacteria.¹

Transitional cell carcinoma is rare in the younger patient. We are currently treating only two young men, both anglers, with this diagnosis. One man of 35 presented eight years ago and has multiple invasive tumours and dysplasia of the whole urothelium, recently necessitating a nephroureterectomy. He is a non-smoker who has worked all his life in computer programming but, when fishing, used bronze maggots for at least five years. The second man, aged 26, has undergone cystoscopy twice, which has shown a single well differentiated tumour and area of dysplasia on each occasion. He is a smoker but again has had no industrial exposure to